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EXPORT INTERMEDIATION AND THE STRUCTURE OF INDUSTRY IN KOREA AND TAIWAN

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ABSTRACT

Export Intermediation and the Structure of Industry
in Korea and Taiwan

National, privately-owned manufacturers of footwear have enjoyed substantial export success in both Korea and Taiwan. But, while the growth of the industry in Korea has been associated with expansion in the size of a relatively small number of firms, expansion in Taiwan has been associated with a proliferation in the number of firms.

A central hypothesis of the paper is that industrial expansion via an expansion in the number, rather than the size, of firms is fuelled by a parallel expansion in the number of traders. A simple general equilibrium model lays out formally the cumulative, reinforcing character of entry by traders and by small manufacturers. And empirical evidence reveals that, as predicted, the expansion in the number of footwear manufacturers in Taiwan was accompanied by a parallel expansion in the number of export traders. In Korea, by contrast, traders failed to play an effective role (at least until the 1980s) with consequent limits on the opportunities for smaller Korean manufacturers.

Why did traders play such very different roles in the two countries? The proximate cause lay in the divergent incentives for individual firms to expand, and the consequent different patterns of subdivision among manufacturers of the orders transferred from factories in Japan to Korean and Taiwanese manufacturers: The Korean -- but not Taiwanese -- government afforded individual firms substantial incentives for expansion, inducing individual Korean firms to seek for themselves orders for enormous volumes of footwear, notwithstanding the presence of some, quite marginal, diseconomies of large-scale production. By contrast, the extensive subdivision of orders in Taiwan (but not Korea), and the consequent larger number of manufacturers, reduced the transactions costs of trading, and encouraged entry by traders in the former nation.

The root cause of differences in the role of traders is to be found in the divergent initial conditions in the two nations. Historical evidence summarized in the paper reveals that Korea was relatively more backward than was Taiwan at the outset of outward-oriented industrialization, with associated higher transactions costs of export intermediation, and a smaller supply of export traders. Viewed from this context, the Korean policies to promote large firms can themselves be viewed as endogenous, as an efficient institutional response to backwardness: in the absence of incentives for firms to expand, the Korean footwear industry would have expanded at a slower rate than was in fact achieved.

The Korean strategy, however, carries with it the risk of fuelling a political-economic process characterized by a high degree of rent-seeking, and associated socially unproductive policies. The Taiwanese experience points to another potential response to backwardness: the promotion of traders emerges as a government intervention that might accelerate industrial expansion without the risk of rent-seeking, via an increase in the participation by small firms in industrial exports.

TABLE OF CONTENTS

Export Intermediation and the Structure of Industry in Korea and Taiwan

by

Brian Levy

A recent article by Tibor Scitovsky (1986) highlighted some differences in the size distribution of industrial firms in Korea and Taiwan, and their implications for the patterns of economic development in the two nations. This study reports on field research that explored further the reasons for these differences in industry structure. The field research targeted a narrowly-defined sector of industry -- footwear -- in which the differences were particularly striking, even as national, privately-owned manufacturers in both nations enjoyed substantial export success.

A number of studies[1] have explored comparatively the ways in which differences across countries in the extent of market failure appear to account in part for parallel differences in industry structure. The present study focuses on the divergent performance in the two countries of one particular market -- the market for export intermediation -- that has not elsewhere been identified as an important influence on the structure of industry, but emerged quite strongly in the field research as one of a variety of reasons for differences in the size distribution of firms in Korea and Taiwan.[2] As is explored analytically below, Korea and Taiwan have differed markedly in their patterns of expansion over time in the supply of export traders. The more rapid expansion over time in the supply of traders shipping exports from Taiwan than

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[1] For a review of these studies, see Caves (1986)

[2] For a general discussion of the determinants of firm size in the footwear industry, see Levy (1987a).

from Korea appears to have been associated with lower costs of intermediation, and thus readier access to the kind of heterogenous, small volume orders that provide the opportunity for small manufacturers to participate in export markets.

The analysis is presented in three parts. The first part presents data on the divergent patterns of expansion of the footwear industry in Korea and Taiwan. The second part lays out three hypotheses, related data and a formal model that highlights the interdependence between the expansion of small manufacturers and independent traders and the ways in which this interdependence can impart to industrial structure a cumulative, mutually reinforcing character. The third part explores the extent to which differences in the patterns of expansion have their roots in the greater relative backwardness of Korea's economic structure vis a vis Taiwan when the two nations embarked on their post-war drives to industrialization.

PATTERNS OF EXPANSION OF THE KOREAN AND TAIWANESE FOOTWEAR INDUSTRIES

The footwear industries of both Korea and Taiwan are overwhelmingly outward-oriented: in 1984 exports accounted for over 90 percent of footwear production in Taiwan, and about 70 percent of Korean production.[3] As Table 1 reveals, the trajectories of export expansion have been remarkably similar in the two nations, with exports of both countries rising from $10 million in 1969, to $700-800 million in 1978, over $1 billion in 1981, and over $2 billion by 1986.

Underlying these similar aggregate trajectories are very different patterns

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[3] The Korean estimate, calculated by volume of production, is from "Footwear Industry: Challenging to Become the World's Top", Korea Trade and Business, December 1986, p. 5; the Taiwanese estimate was provided by a leading official of the Taiwan Footwear Manufacturers Association.

Table [1] . Value of Footwear Exports from Korea and Taiwan, 1969-1986 ($ million)

	Korea	Taiwan
1969	$ 10	$ 10
1970	18	40
1971	50	69
1972	62	105
1973	109	186
1974	182	190
1975	200	258
1976	417	542
1977	515	652
1978	726	771
1979	765	945
1980	904	1,411
1981	1,049	1,444
1982	1,182	1,463
1983	1,270	1,886
1984	1,398	2,270
1985	1,571	2,301
1986	2,109	-

Source: Taiwan Footwear Manufacturers Association, Shoe Industry in Taiwan (Taipei, 1986) p. 4; and data provided by Korea Footwear Exporters Association

of expansion. First, as Table 2 reveals, while footwear manufacture in Korea has consistently been biased towards large establishments and enterprises, manufacture in Taiwan has been biased towards smaller units: in 1976 establishments[4] with 500 or more workers accounted for almost 90 percent of value added in the Korean footwear industry, yet less than 20 percent of value added in Taiwan.

Second, while the growth of the industry in Korea has been associated with expansion in the size of a relatively small number of firms, expansion in Taiwan has been associated with a proliferation in the number of firms. Thus between 1971 and 1979 the number of Korean exporters of footwear rose from only 9 to 19 firms, while (as is detailed in Table 3) the average value of exports per firm rose sevenfold, from $5.6 million to $38.2 million per firm. The corresponding number of Taiwanese exporters rose from 178 to 563 firms, with the average value of exports rising from $0.4 million to $1.7 million per firm.

Third, footwear exports have become increasingly diversified over time in Taiwan, but not Korea. In 1976 vulcanized canvas/rubber running shoes accounted for 40 percent of Korean footwear exports; by 1985, the share of vulcanized shoes had fallen to 12.8 percent of export value; but non-rubber athletic shoes now accounted for an overwhelming 71.3 percent of Korean footwear exports. In Taiwan, by contrast, the extent of specialization has declined over time. In 1971, plastic sandals comprised 40 percent of Taiwan's footwear

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[4] The Korean data explicitly treat different establishments under common ownership as distinct units (and thus presumably underestimate the extent of size concentration measured by firm). Although the Taiwanese data are purportedly for enterprise (not establishment) units, they too do not appear to group multiple enterprises (each typically a single factory) under the control of a single group (outside of Taiwan, such an arrangement would be described as a multiplant firm) into a single unit. For all of these ambiguities of definition, observers of the footwear industry in the two countries all report a difference in structure that parallels the evidence in Table 2.

Table 2: Value Added in the Footwear Industry in Korea and Taiwan by Size of Enterprise/Establishment, 1976 & 1981 (%)

	1976		1981	
	Korea	Taiwan	Korea	Taiwan
5-99	3.2%	23.7%	6.5%	25.6%
100-299	3.8	35.4	6.9	36.5
300-499	3.1	21.4	6.1	19.4
500+	89.9	19.5	80.5	18.5
	100.0%	100.0%	100.0%	100.0%

Source: Republic of Korea, Economic Planning Board, Report on Mining and Manufacturing Survey, 1976 and 198 ; Republic of China, Directorate-General of Budget, Accounting and Statistics, Executive Yuan, The Report on the Industrial and Commercial Census, Taiwan-Fukien Area, 1976 and 1981

Table 3 _: Average Value of Exports per Footwear Manufacturer in Korea and Taiwan, 1969-1986 ($ million)

	Korea	Taiwan
1969	-	$0 1
1970	-	0.5
1971	$ 5.6	0.4
1972	6.9	0.4
1973	9.9	0.7
1974	14.0	0.7
1975	12.5	0.8
1976	23.2	1.6
1977	27.1	1.3
1978	38.2	1.4
1979	38.2	1.7
1980	36.1	2.4
1981	30.9	2.0
1982	28.8	1.9
1983	25.4	2.1
1984	24.1	2.1
1985	23.1	2.0
1986	25.4	-

Sources: As in Table 1; and unpublished data on numbers of members, provided by Korea Footwear Exporters Association; and Ministry of Commerce and Taiwan Footwear Manufacturers Association, Analysis of Footwear Industry (Taipei, 1986) p. 59

exports. By 1985 the leading export item (non-rubber athletic footwear, as in Korea) accounted for just 27.5 percent of footwear exports, with the next five[5] items providing an additional 42.4 percent of the total. The remaining 30 percent of exports was comprised of dozens of distinct items, no one of which accounted for more than 3 percent of total exports.[6]

Differences in the mix of footwear produced in Korea and Taiwan point to a superficially appealing, but ultimately unhelpful, explanation for the divergent structures of the footwear industry in the two countries: that the efficient scale of production varies across different segments of the footwear market, with Korea specializing in the production of shoes for which efficient scale is large, and Taiwan specializing in the production of shoes for which efficient scale is small.

There are two major shortcomings of using the technical characteristics of production to account for differences in the structure of the footwear industry in the two countries. First, as is detailed in a companion paper (Levy, 1987), field visits to more than a dozen footwear factories of varying sizes, as well as interpretive analysis of data on the evolution of the size of footwear manufacturers in the two countries, failed to uncover any evidence of significant differences across types of footwear in the efficient scale of production. On the contrary, the athletic shoes that were key items of production in both countries were produced in small factories in Taiwan, and in

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[5] The five items are plastic casual shoes (11.5% of exports), vulcanized canvas/rubber shoes (9.2%), special plastic shoes (7.5%), plastic sandals (7.2%) and plastic high-heel shoes (7.0%). In all, plastic footwear of various varieties accounted for 52.8% of Taiwan's footwear exports.

[6] The Taiwanese data are from Taiwan Footwear Manufacturers Association, Analysis of the Footwear Industry (Taipei: 1986) pp. 7, 10; the Korean data are from "Challenging to Become World's Top"

large establishments in Korea. Indeed, if anything, the conclusion drawn from field visits was that beyond four or so production lines for footwear 'lasting' (the assembly of uppers and soles)[7], footwear manufacture is characterized by some (quite limited) diseconomies of scale.[8]

The second limitation of an effort to explain differences in the Korean and Taiwanese industry structure by taking as a starting point differences in product mix and thence in the technical characteristics of production is its circularity: such an explanation treats as exogenous a difference between the two countries that itself needs to be explained as an endogenous variable in a more complete model. It is to the specification of such a model -- a model in which the role of export traders is accorded a central position -- to which we now turn.

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[7] Some, but not all, footwear factories also are vertically integrated into the manufacture of soles, and the cutting and stitching of footwear uppers. For an analysis of the determinants of vertical integration, see Levy (1987)

[8] For additional evidence of the absence of scale economies in the footwear industry, see C.F. Pratten, Economies of Scale in Manufacturing Industries (Cambridge: Cambridge University Press, 1971), quoted in Gillis, Perkins, Roemer and Snodgrass, Economics of Development (Norton: 1983) p. 550. It is worth noting explicitly the relationship between learning-by doing and the efficient scale of production. Obviously, learning-by-doing and the costs of downtime imply that there are efficiency advantages in maintaining the same shoe on an individual production line for the maximum period attainable given the lead time for an order. However, the economies derived from increasing production on a single line are quite different from the economies (or, in the present case, diseconomies) associated with increasing the number of production lines. Assuming 50-60,000 pairs of shoes per line per month, a four line factory can produce 200-250,000 shoes monthly With a two-month lead time available for production (a span that is in excess of what is available for most orders as of the mid 1980s), a four line factory has the capability of producing order volumes of no more than 500,000 pairs -- even assuming that it is willing to risk producing exclusively for a single buyer. At their peak, wholesalers of athletic footwear such as NIKE and REEBOK were procuring from Korea alone as much as 4 million pairs of shoes in a single month.

EXPORT INTERMEDIATION AND THE STRUCTURE OF INDUSTRY IN KOREA AND TAIWAN

The development of a model proceeds in two stages. The first stage details three hypotheses, together with data on the salience of these hypotheses in the context of Korea and Taiwan. The second stage lays out a simple general equilibrium model that formalizes the interaction among the variables highlighted by the hypotheses.

The Divergent Patterns of Intermediation: Three Hypotheses

The interaction of traders and small manufacturers. A central hypothesis of this paper is that industrial expansion via an expansion in the number, rather than the size, of firms is fuelled by a parallel expansion in the number of traders. The corollary follows that very different patterns of intermediation drove the divergent patterns of expansion in the two countries. In particular, the hypothesis implies that the expansion in footwear exports was driven in Taiwan by a cumulative, mutually reinforcing expansion in the number of traders and small manufacturers. In Korea, by contrast, traders failed to play an effective role (at least until the early 1980s) and as a consequence export opportunities were more limited for smaller Korean manufacturers than for their Taiwanese counterparts.

The available data, for all of their limitations, appear to be consistent with this first hypothesis. Differences between Korea and Taiwan in the numbers of footwear manufacturers over the course of the 1970s have already been summarized. The difference persisted in the 1980s: as of 1985, there were 1,140 registered manufacturers of footwear for export in Taiwan, but only 68

manufacturers in Korea.[9] Evidence on the numbers of manufacturers over time is not, of course, sufficient to illustrate a cumulative pattern of expansion via the interaction of entry by traders and by manufacturers. And available evidence on the role of traders is not as detailed as might be desired. Nonetheless, the data on traders provide some indication of their divergent roles in the two nations.

The extent of unreliability of the estimates of the numbers of export traders in footwear over time for Taiwan in particular is evident in the notes to Table 4; for example, while the estimate calculated from published sources put the number of export traders in footwear in Taiwan in 1984 at 300, a senior official of the Taiwan Footwear Manufacturers Association estimated that approximately 2,000 traders exported footwear from that island. The total number of export traders over time in each nation must, perforce, serve as the best available proxy. The data in Table 4 on the membership over time of the Korea Traders Association appear to approximate reasonably an upper bound on the actual number of export traders from that nation.[10] The estimates based on membership of the Association of Taiwanese Importers and Exporters were less helpful.[11] Indeed, for Taiwan only the census totals subsequent to 1973 appear

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[9] Estimates of the number of exporters in each country for each year between 1971 and 1985 can readily be calculated from Tables 1 and 2.

[10] Manufacturers as well as importers and exporters are permitted to join the Korea Traders Association (KTA); and only members of the KTA are permitted to operate as export traders. It was not clear whether foreign traders with offices in Korea were required to register as members of the KTA. Table 10 below provides some independent evidence on the role of foreign traders.

[11] While (as in Korea) manufacturers have the right to become members, unlike Korea membership of the association is not mandatory for export traders.

Table 4: Numbers of Traders in Korea and Taiwan, Selected Years

Year	Korea[1/]		Taiwan		
	Footwear[3/]	Total	Footwear[2/3/]	Total I[2/]	Total II[4/]
1947	-	-	-	351	18
1950	-	-	-	1,051	32
1960	-	-	-	1,287	165
1970	18	-	67	2,491	1,286
1972	19	-	98	2,965	-
1973	28	1,200	-	-	2,777
1975	39	1,900	105	4,046	4,430
1977	-	-	-	-	7,051
1978	-	-	-	-	8,899
1980	43	2,300	73[5/]	5,573	13,320
1982	168	3,500	-	-	14,117[7/]
1984	159	5,300	300[5/6/]	7,258	20,597

Sources: Data supplied by Korea Traders Association and Importers and Exporters Association of Taiwan; Republic of China, Executive Yuan, Directorate-General of Budget, Accounting and Statistics, The Report on 1981 Industrial and Commercial Census Taiwan-Fukien Area, The Republic of China volume VI, 1981 pp.156-157; Republic of China, Ministry of Finance, Monthly Bulletin of Financial Statistics, 1987, p.94

Notes: 1/ Members of the Korea Traders Association; Membership of the trade association includes those manufacturers who choose to join as well as import and export traders. Only enterprises that are members of the Korea Traders Association are permitted to to operate as export traders

2/ Members of Importers and Exporters Association of Taiwan; Membership of the trade association includes those manufacturers who choose to join as well as import and export traders. In Taiwan, only those traders with assets in excess of NT $2 million are eligible to join the Importers and Exporters Association; non-members are not barred from engaging in export trade

3/ Those members of the respective associations that explicitly listed footwear exports as a line of business

4/ Data are from Republic of China, Industrial and Commercial Census: prior to 1976, data are estimates reconstructed from incomplete prior censuses; data measure number of traders engaged in exports

5/ The number of firms listed under the category "footwear, except plastic shoes, rubber boots and canvas shoes" (the only export category that made explicit reference to footwear in 1980 and 1984)

6/ An informal estimate by a senior official of the Taiwan Footwear Manufacturers Association put the total number of footwear export traders at 2,000

7/ Data for 1982 and 1984 are from Republic of China, Monthly Bulletin of Financial Statistics

moderately reliable.[12] Yet for all of these difficulties with data, Table 4 points to both a consistently larger number of traders in Taiwan than in Korea and -- notably in the more reliable post-1973 estimates -- an exceedingly rapid expansion in the number of traders in the former nation.

The cumulative divergence in the roles of traders over time in the two nations is more clearly evident in Table 5. As that table reveals, in Taiwan--but not Korea -- the expansion in the number of traders kept pace with the overall expansion of manufactures exports: whereas the average value of industrial exports per Taiwanese trader altered hardly at all between 1973 and 1984, the average export value of Korean traders increased by almost three-fold between 1973 and 1980, declining somewhat thereafter.

Evidence of divergent patterns of participation by traders is not, to be sure, a sufficient basis for confidence in the plausibility of the hypothesis that divergent patterns of intermediation underlie the divergent patterns of expansion of the footwear (and other similar) industries in Korea and Taiwan. The formal model, developed below, provides further grounds for confidence: the model demonstrates how (as in Taiwan) a proliferation of traders can provide small manufacturers with increasing access over time not only to orders for standardized types of shoes, but also to orders for small heterogenous lots of footwear. As the model explores, in the absence of such traders, a nation's footwear industry is dependent for its expansion on continuing inflows of orders of large volume for standardized types of shoes.

The determinants of entry by traders. Why did traders play such very different roles in the two countries? In general terms, the hypothesis

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[12] But Cho (1987) makes reference to a 1982 estimate of over 30,000 Taiwanese traders.

Table 5 : Average Value of Industrial Exports per Export Trader in Korea and Taiwan, 1973-1984 ($ million)

	Korea	Taiwan[1/]
1973	$2.4	$1.4
1975	2.5	1.0
1978	-	1.3
1980	7.0	1.3
1982	5.8	1.5
1984	5.2	1.4

Sources: Republic of China, Council for Economic Planning and Development, Taiwan Statistical Data Book, 1986 (Taipei) p. 207; Republic of Korea, Economic Planning Board, Major Statistics of Korean Economy, 1986 (Seoul) p. 225; and sources in Table

Notes : 1/ export trader data are from "Total II" in Table 4.

explored in this paper is that differences in the roles of traders can be traced to differences between Korea and Taiwan in the transactions costs of intermediation between traders and manufacturers. A subsequent section of the paper explores in some detail the character of the transactions costs of intermediation and their relationship to the divergent initial conditions prevailing in the two nations. What will suffice for now is the hypothesis that the incentive of traders to source orders from a particular nation is a function of the number of manufacturers in that nation: the larger is the number of manufacturers of footwear, the more readily will intermediaries identify firms willing to fulfil their orders, and thus the lower will be the transactions costs of trading. Empirically, this hypothesis implies that the differential role of traders has its origin in differential degrees of subdivision among manufacturers of the orders transferred from factories in Japan to Korean and Taiwanese manufacturers. The formal model will illustrate how different degrees of subdivision might have set in motion the divergent, subsequent patterns of expansion delineated in the first hypothesis. Here we focus on the empirical evidence as to differences in the degree of subdivision.

In both Korea and Taiwan, the decision in the 1960s by the major Japanese trading companies to relocate the manufacture of footwear for the USA market from Japan represented the primary impetus[13] for the expansion of footwear exports. Within a few years the Japanese had subdivided their orders in Taiwan: by 1971, 50-70 Taiwanese factories were producing plastic footwear for export

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[13] A fundamental impetus for export expansion was of course the general shift to outward-oriented policies in both nations. See Levy (1986) for a review of these policies.

by the Japanese traders.[14] But there was no parallel subdivision in Korea: as late as 1979 five leading firms accounted for 64 percent of all footwear exports from Korea. Indeed, as of 1975, a single Korean firm earned revenues of $100 million for its manufacture of footwear for Mitsubishi, the largest exporter of shoes to the USA among the Japanese. The fulfillment of an order on this scale required the full-time operation of over 50 production lines;[15] even in 1985, eight lines was the maximum for any Taiwanese factory.[16] The single largest customers for two other large Korean firms for which information is available placed orders that in the mid-1970s ranged in value from $15-$20 million annually; each firm devoted a minimum of 18 lines exclusively to these single customers.

The role of initial conditions. Why were the patterns of subdivision of orders for large volumes so very different in Korea and Taiwan? As will be explored in somewhat more detail below, the proximate cause appears to have been the very different incentives for expansion afforded firms by the Korean and Taiwanese governments in the context of an industry characterized by some, quite marginal, diseconomies of large-scale production. However -- and this is the third large hypothesis of the study, to be explored in a subsequent section of this paper -- the differences in policy appear to have themselves

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[14] Reported by a senior official of the Taiwan Footwear Manufacturers Association, himself a manufacturer in that early period.

[15] Reported by a senior executive of the Korean company. The number of lines is calculated by assuming an fob price of $3.00 per pair of shoes, and production of 2,000 pairs per line per day. At its peak in the late 1970s, the company was operating 118 production lines.

[16] Reported in Table 54, Taiwan Footwear Manufacturers Association, Analysis of Footwear Industry (Taipei, 1986), p. 81. There are a number of multi-factory footwear groups in Taiwan; but the largest of these controls only 25 lines.

been endogenous: the incentives afforded Korean firms to expand can be viewed as an efficient institutional response to the relative backwardness of Korea's economic structure -- and a series of associated market failures, not least in the market for export intermediaries -- relative to Taiwan at the outset of the two nations postwar drives to expansion.

A General Equilibrium

Figures 1(a) and 1(c) distinguish between two submarkets for footwear. One distinction between the submarkets is in their types of orders: Figure 1(a) depicts the submarket for small-lot, heterogenous orders of specialized shoes, and Figure 1(c) the submarket for standardized, homogenous shoes in which individual orders are for large volumes.

A second distinction is in the mechanisms of procurement by buyers. Buyers can choose either to purchase footwear directly from manufacturers, or to purchase through intermediaries. Direct purchases necessarily involve the fixed costs of learning about doing business in the exporting nation, and establishing the requisite channels. Thus buyers of heterogenous, small-lot orders (for whom the formal costs of direct purchase are likely to be large relative to the size of their operations) are presumed to channel their purchases through traders who perform the function of intermediating between purchaser and manufacturer.[17] Large volume purchases from manufacturers of

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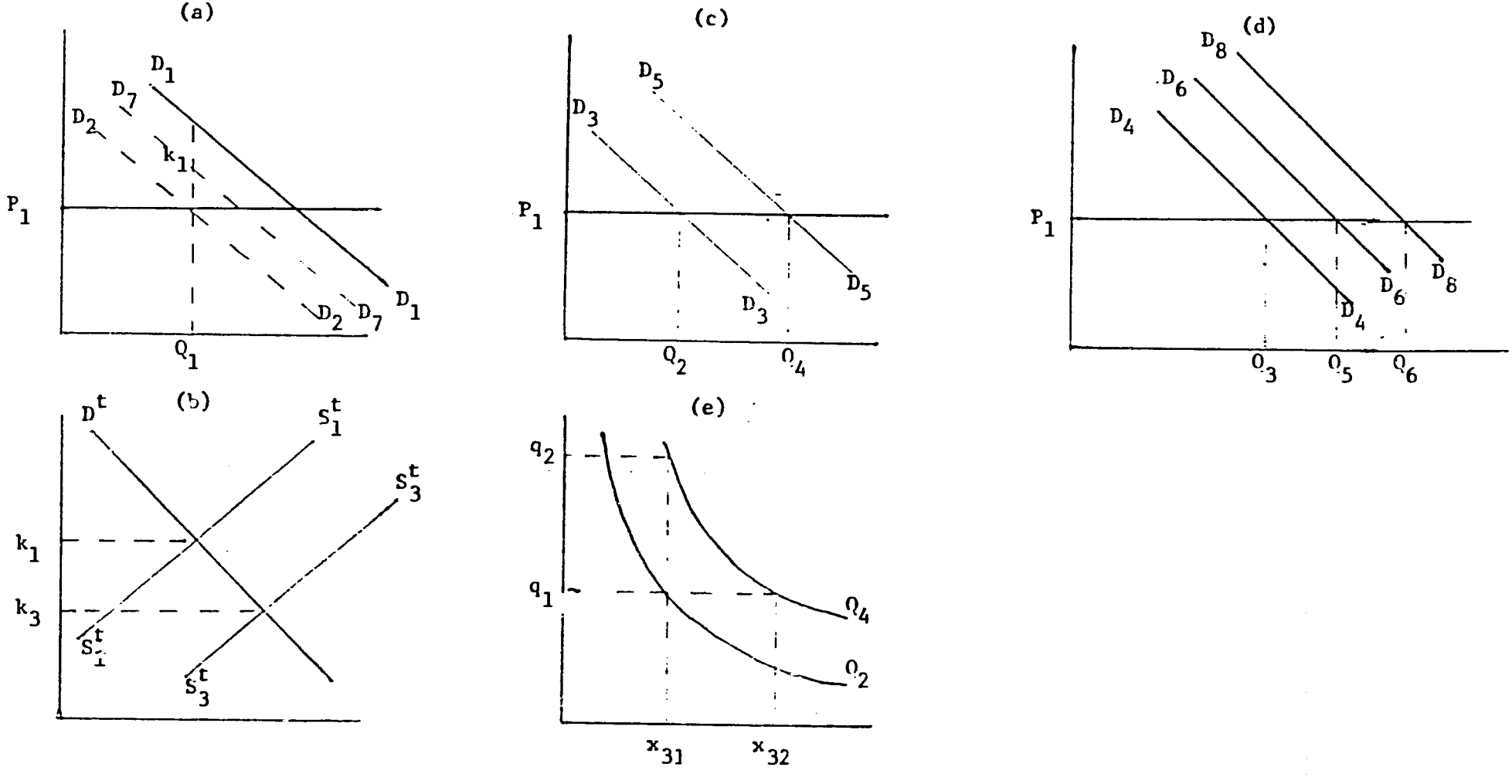
[17] If the total cost of purchase through intermediation (TC_1) = $PQ + kQ$ and total costs of direct purchase (TC_2) = $PQ + Z$, then

$$TC_1 < TC_2$$
$$\text{iff} \quad Q < Z/k.$$

Thus $Q^* = Z/k$ represents the volume at which buyers shift from indirect to direct purchase.

Figure 1


(a)
D1
D7
D2
k1
P1
D2
D7
D1
Q1
(b)
Dt
S1t
S3t
k1
k3
S1t
S3t
(c)
D5
D3
P1
D3
D5
Q2
Q4
(d)
D8
D6
D4
P1
D4
D6
D8
Q3
Q5
Q6
(e)
q2
q1
Q4
Q2
x31
x32

shoes of homogenous designs are more likely to be made directly.[18]

A third distinction between the two submarkets is in the size of manufacturing enterprises. Assume that the transactions costs of dealing with buyers increase proportionately with the number of orders and the number of buyers, and are invariant with respect to the volume of individual orders. It follows that large firms -- with a scarce supply of managerial resources -- will prefer a relatively small number of large, homogenous orders to a large number of small orders. Conversely, it is taken to be true by definition that individual small firms cannot handle large orders.[19] Assume for convenience that manufacturers of footwear must be one of two sizes (measured by their volume of production): "small" or "large". Assume further that the minimum size of orders that large firms accept is sufficiently large that all of their orders are for standardized types of shoes. It follows that the submarket for heterogenous footwear depicted in Figure 1(a) is dominated exclusively by small manufacturers. In principle, both small and large firms can participate in the submarket for standardized shoes depicted in Figure 1(b); as will be explored in more detail below, whether that market is dominated by small or large firms depends on the extent to which orders for large volumes are subdivided among multiple manufacturers.[20]

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[18] The model presumes for simplicity that all large-volume orders are procured directly. Note, however, the possibility that if intermediation services are competitively priced, some large orders may also be channelled through traders.

[19] Insofar as it is prudent practice for small firms to diversify their sources of business -- and interviews suggested that most firms indeed sought such diversification -- the maximum sized order that a small firm will handle will be below its potential capacity.

[20] Note that even in the absence of the strong assumptions in the text, given that direct orders are larger than orders through intermediaries, and given some correlation between firm size and preferred order size, the

One final assumption -- that the supply curve for footwear is perfectly elastic at a factory gate price of P_1[21] -- is needed prior to laying out the simple general equilibrium model underlying Figure 1. Underlying this assumption are two subsidiary propositions: that -- as summarized earlier -- beyond a relatively modest volume, production is characterized by some (quite limited) diseconomies of scale; and that in both Korea and Taiwan there are large numbers of potential small and medium-sized entrants into the industry at the prevailing price of footwear.[22]

D_1D_1 in Figure 1(a) represents the summation of the marginal values of additional purchases for each of the buyers of heterogenous footwear items from an individual exporting nation.[23] D_1D_1, however, represents nominal demand (D_x) rather than effective demand (D_n) as transmitted to manufacturers, insofar as intermediaries receive payment, k_1, per unit purchased; the effective demand

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proportion of orders channelled through intermediaries that goes to large firms will be lower than the proportion of direct purchases that goes to large firms.

[21] It is perhaps worth noting here that in the face of 30 percent real annual growth in export sales over a fifteen year period, an assumption of perfect elasticity does not necessarily do as much violence to reality as it might in other contexts.

[22] Along with its importance for the assumption of perfect supply elasticity, the proposition of large numbers of potential entrants excludes a priori the hypothesis that differences in entrepreneurial supply functions account for differences in the roles of small and medium firms in the two nations, an hypothesis that is in some sense a confession of ignorance as to the determinants of industry structure.

[23] It might be objected that the foreign demand for footwear (or indeed for any traded item) faced by an individual nation is perfectly elastic, at the price prevailing on the international market. The rationale for the downward sloping function is that buyers trade off at least to some degree the objective of minimizing price with the objective of limiting risk, by diversifying their sources of supply. Since manufacturers in both Korea and Taiwan are efficient producers, and their export prices are in a similar range, it seems appropriate to take the demand function to be downward-sloping.

for purchases of heterogenous orders is D_2D_2. Formally, then,

$$D_n = D_n(k, D_x) \qquad d/dk<0;\ d/dD_x>0. \quad (1)$$

Figure 1(b) illustrates how k is determined. The demand for trading services,[24]

$$D_t = D_t(k, D_x) \qquad d/dk<0;\ d/dD_x>0 \quad (2)$$

is a function of the cost of these services, k, and the nominal demand function for footwear purchases.

On the supply side, we define a trader supply function[25]

$$S_I = S_I(k, TC, H) \quad d/dk>0;\ d/dTC<0 \quad (3)$$

where

TC = transactions costs of trading;

H = relevant historical features of the exporting nation that have influenced the supply of traders;

The functional determinants of TC can in turn be written as

$$TC = TC(M, X) \quad d/dM<0 \quad (4)$$

where

M = number of manufacturers;

X = a vector of other influences on transactions costs

The nature and impact of variables H and X will be considered later. As for M, as outlined earlier the hypothesis here is that the larger is the number of potential manufacturers of footwear, the more readily will intermediaries

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[24] The demand function, D_t, in Figure 1(b) maps the total effect of a change in k on demand for trading services -- both the direct price effect, and the indirect effect of a change in k on effective demand for footwear.

[25] As is clarified further in the formal analysis below, S_I in Figure 1(b) represents the total effect of a change in k on the supply of trading services -- both the direct price effect, and the indirect effect of a change in k on the demand for footwear, and thence on the number of manufacturers and on transactions costs.

identify firms willing to fulfil their orders, and thus the lower will be the transactions costs of trading. The number of manufacturers is in turn determined by

$$M = M(M_0, D_n) \quad d/dM_0, d/dD_n > 0 \qquad (5)$$

where

M_0 = the number of manufacturers engaged in production of large volume orders of standardized footwear products.

Finally, the system is closed by the equilibrium condition

$$D_t = S_I. \qquad (6)$$

Figure 1 includes two further diagrams. Figure 1(d) contains industry supply and demand functions, in which D_4D_4 is the horizontal sum of D_2D_2 and D_3D_3. And Figure 1(e) is a summary of the different ways in which large volume orders of a given size might be subdivided; q represents the volume of production per manufacturer, and M the number of manufacturers.[26] Q_1, Q_2, Q_3 (= $Q_1 + Q_2$), k_1, q_1 and M_1 represent an initial equilibrium for the system.

In what way does the general equilibrium model help reveal the divergent dynamics of expansion of the Korean and Taiwanese footwear industries? Recall that the primary impetus for the expansion of footwear exports from both Korea and Taiwan was the decision by Japanese trading companies to relocate their large-volume orders, targeted for sale in the USA, to these countries. This upsurge in orders can be characterized as a shift in demand from D_3D_3 to D_5D_5 in figure 1(c), and thus to D_6D_6 in figure 1(d). The new equilibrium volume of large orders is Q_4, and of total production is Q_5 (= $Q_1 + Q_4$). If--

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[26] Given our simplifying assumption that firms must produce at one of two volumes, q is constrained to take on the values of q1 and q2. Readers offended by loose ends of unfilled orders can add the assumption that all orders for large volumes are some multiple of q1 and q2.

as in Korea -- all of the increment in large orders is placed with existing firms, the equilibrium combination in figure 1(e) shifts from M_1q_1 to M_1q_2 with no further consequences. If, however, the increment is placed -- as in Taiwan -- entirely with new firms -- if, say, all the new firms produced q_1, there would be $M_2 - M_1$ new entrants -- then a cumulative process of expansion will result; Figure 1 provides a comparative static illustration.

Recall that the number of manufacturers, M, entered as an argument in the trading supply function in equation (3). If the expansion in production from Q_3 to Q_5 is met by an increase in the number of manufacturers from M_1 to M_2, the supply function of trading services in Figure 1(b) will shift from $S_1^IS_1^I$ to $S_3^IS_3^I$ with a consequent reduction in k, from k_1 to k_3. The fall in k implies in turn that D_2D_2 in figure 1(a) shifts outward -- to D_7D_7 -- as the effective demand for low volume, heterogenous items of footwear rises in response to the lower cost of intermediation. The shift to D_7D_7 -- and thus to total demand function D_8D_8 -- implies an expansion in total production, to Q_6 in Figure 1(c). If this expansion is met by a further increase in the number of manufacturers, the entire process continues..... until the entry of new manufacturers has no further impact on the costs of intermediation. The data in Tables 3, 4 and 5 delineating the pattern of expansion of the Taiwanese footwear industry are consistent with the cumulative process implied by the model. By contrast, the data for Korea are consistent with a pattern of expansion dependent on the expansion of orders for large volumes with no subdivision of these orders among manufacturers, and hardly at all (at least until the 1980s) on small-lot heterogenous orders of the kind that are most efficiently channelled through traders.

Formally, the comparative statics of the general equilibrium system can be

solved as follows. By substitution of equations (1) - (5) into equation (6)

$$S_I[k, H, TC(X, M(M_0, D_n[k, D_x]))] = D_t[k, D_n(k, D_x)] \qquad (7)$$

Totally differentiating (7) and calculating dk/dM0 -- the general equilibrium impact of an increase in the number of manufacturers via the direct purchase market on the market for intermediation -- yields:

$$\frac{dk}{dMo}\left[\frac{dSI}{dk} + \frac{dSI}{dTC}\frac{dTC}{dM}\frac{dM}{dDn}\frac{dDn}{dk} - \frac{dDt}{dk} - \frac{dDt}{dDn}\frac{dDn}{dk}\right] = -\left[\frac{dSI}{dTC}\frac{dTC}{dM}\frac{dM}{dM0}\right]$$

Given either the assumption of a positively sloped trader supply function,[27] or the weaker assumption of a stable convergence of the system of equations to equilibrium,[28] the sign of dk/dM_0 can readily be calculated from equation (8) to be negative.

THE IMPACT OF INITIAL CONDITIONS

The formal model has illustrated how divergent patterns of expansion of their footwear industries might have followed from differential degrees of subdivision among of the orders transferred to Korea and Taiwan from factories in Japan. It was suggested earlier that divergent incentives for expansion represented the proximate cause for the different degrees of subdivision. This

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[27] dS^I/dk represents the (positive) direct effect of the price of intermediation on the supply of traders. $(dS^I/dTC)(dTC/dM)(dM/dD^n)(dD^n/dk)$ represents the negative indirect effect of the price of intermediation on trader supply; that is, the effect via the impact of k on effective demand for footwear and thence on the number of manufacturers and the transactions costs of trading. As long as the former effect is greater than the latter, the trader supply function will be positively sloped -- and the left-hand-side bracketed term of equation (8) will have the necessary positive sign.

[28] Even if, contrary to the assumption in footnote 17 above, the slope of S^I is negative, Figure 1(b) will converge to equilibrium following a shift in S^I as long as the slope of D^I is greater than the slope of S^I. Since the slope of D is $((dD^t/dk) + (dD^t/dD^n)(dD^n/dk))$ the condition of stability is sufficient to ensure that the left hand side bracketed term of equation (8) has the necessary positive sign.

paper is not the place to compare the patterns of incentives in the two countries in any detail; rather, a few summary observations must suffice.

First, the incentives in Korea favoring the expansion of firms can be traced to the characteristics of that nation's formal credit markets, in particular the high levels of control, and associated rationing of credit, by the Korean government. Second, the automatic provision on concessional terms of short-term working finance for exports occupied a special position amidst the panoply of rationed credit in Korea, providing firms with an opportunity to earn rents in financial markets by expanding their exports. Third, the special prestige associated with export performance opened the door to a host of additional rationed credit and tax concessions for successful Korean exporters.[29] In the face of these incentives, the lure for individual Korean firms to take for themselves orders for enormous volumes in the footwear indusry -- an industry in which the technological demands of production were small, and the up-front investment costs low -- proved irresistable.

Prudence suggests it might be well to ascribe the patterns of incentives prevailing in Korea in the late 1960s and early 1970s to the distinctive (exogenously determined) preferences of President Park and his policy advisers, and declare the analysis complete at this point. Instead, imprudently, this paper probes further, exploring how the Korean policies to promote large firms might themselves be viewed as endogenous, as an efficient institutional response to the relative backwardness of that nation's economic structure as it

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[29] For discussions of the Korean financial system, and the ways in which government used finance as a mechanism of control, see Cole and Park (1983), and Jones and Sakong (1980). For an analysis of the relationship between access to working finance and the decision to export, see Park (1983), pp. 41-50. For a more detailed review by the present author, see Levy (1987).

embarked upon the path of outward-oriented industrialization.[30] In particular, we shall explore the extent to which Korea's backwardness relative to Taiwan might plausibly have been accompanied by higher transactions costs of export intermediation. Such an association points to the possibility that, in the absence of incentives for firms to expand, the Korean footwear industry would not have expanded at the same rate, along the same pattern, as did the Taiwanese industry. Rather, the result would have been a slower rate of Korean expansion than was in fact achieved.

Differences in Initial Conditions

Tables 6 and 7 offer evidence of the disparity in initial conditions at the outset of the enormously successful post-war drives to industrialization of Korea and Taiwan. As Table 6 reveals, Taiwan's per capita GNP in 1955 was more than 70 percent above that of Korea's; indeed, in real terms it was only at the close of the 1960s that Korea's per capita income exceeded the level in Taiwan in 1955. At least as striking is the disparity evident in Table 7 between levels of education in the two societies: in 1960 the percentage of Taiwanese above the age of six with twelve or more years of schooling was almost three times that of Korea. Indeed, only in the late 1970s did the absolute number of Koreans with twelve or more years of education first exceed the number in Taiwan.

There are (at least) three sets of reasons for the disparity evident in Tables 6 and 7. First, by 1950 Taiwan had secured the political stability necessary for economic development; but it was only a decade later -- after the

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[30] For the seminal article on institutional responses to relative backwardness, see Gerschenkron (1961).

Table 6: Real Incomes Per Capita in Korea and Taiwan (in constant 1965 $)

	Korea	Taiwan
1. GNP per capita (in constant 1965 US $)		
1955	$ 81	$ 140
1960	95	157
1965	103	216
1970	150	312
2. Total Population (millions)		
1955	21.5	9.1
1960	25.0	10.8
1970	31.5	14.7

Sources: Republic of China, Council for Economic Planning and Development, Taiwan Statistical Data Book, 1986 (Taipei); Republic of Korea, Economic Planning Board, Korea Statistical Yearbook (various years); Republic of Korea, Economic Planning Board, Handbook of Korea Economy

Table 7: Proportions of the Populations over Six Years of Age in Korea and Taiwan with Twelve or More Years of Education ('000s and %)

	Korea		Taiwan
1952	-		650 (10.2%)
1960	1,038	(5.3%)	1,207 (14.2)
1965	-		1,788 (17.4)
1970	2,729	(10.4)	3,740 (30.2)
1975	3,856	(13.1)	4,956 (35.4)

Sources: Republic of China, Council for Economic Planning and Development, Taiwan Statistical Data Book, 1986 (Taipei); Republic of Korea, Economic Planning Board, National Bureau of Statistics, Population and Housing Census Report (1960, 1970, 1975)

Korean war and subsequent domestic political turmoil -- that political conditions conducive to economic development were in place.

The second set of reasons has to do with the inflow of mainlanders into Taiwan subsequent to the communist revolution of 1949. One direct consequence of the inflow was the transfer to Taiwan of the sophisticated business skills of a portion of the Shanghai business elite. A second consequence was the continued governance of Taiwan by an administrative elite from the mainland. The political dominance of the Kuomintang elite ensured that the attention of the elite of pre-1949 Taiwanese society remained focused (as it had been during the period of Japanese occupation) on economic rather than political concerns.[31] By contrast, in response to the vacuum left by the Japanese withdrawal, and in the context of a culture steeped in Confucian values, a significant number of the most educated and influential Koreans were drawn irresistibly into politics and government.

Finally, there appear to have been substantial differences in the endowments of human capital in each country at the close of their common period of occupation by the Japanese, even prior to the influx of mainlanders into Taiwan. As Table 8 suggests, during the period of occupation a higher proportion of the economically active population appears to have been engaged in commerce in Taiwan than in Korea; indeed the data in Table 9 suggest that it was only in the 1960s that (measured as the share of total employed) commercial activity in Korea reached a level enjoyed by Taiwan already in 1930. Although data are not available for the nineteenth century, it is noteworthy that at a time when Korea was only gradually emerging from its two-hundred year

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[31] For a discussion of the evolution of the Taiwanese economic elite, see Thomas Gold (1981).

Table 8: Number of People Engaged in Commerce in Korea and Taiwan, 1905-1964[1/]
('000s of people; and percentage of economically active population

	Korea	Taiwan
1905	-	87[2/] (6.2%)[3/]
1920		102[2/] (6.3)
1930		158[2/] (8.0)[4/]
1938	546[5/6/] (5.6%)	
1949	370[7/] (4.7)	
1953	405[9/] (5.6)	310[8/] (10.6)
1960	586[9/] (6.9)	346 (10.0)
1964	863[10/] (11.1)	350 (9.6)

Sources: Chou Chien Wen, Taiwan Economy from 1895 to 1945 (Taipei: Taiwan Kai Ming Books, 1980); Republic of China, Taiwan Statistical Data Book
Republic of Korea, Economic Planning Board, Korea Statistical Yearbook
Republic of Korea, Population and Housing Census Report, 1960

Notes : 1/ The various sources from which the data are taken do not always offer consistent, explicit or precise definitions of the commercial sector. Where possible, I have endeavored to organize the data on the basis of a consistent definition of employment in commerce as the sum of employment in wholesale and retail trade, in hotels and restaurants, and in finance.

2/ Taiwanese only; excludes those Japanese resident in Taiwan that were employed in commerce

3/ Percentage of total employed; for 1905, 1920 and 1930 'total employed' in Taiwan is taken to be the total non-dependent population (that is, the total population excluding children and aged).

4/ An estimate of 'total employed' is not available for 1930; the percentage for that year is calculated on the conservative assumption that the ratio of total employed to total population is 43.0% -- the lowest observed ratio for the 1905, 1915 (not shown) and 1920 estimates

5/ For North plus South Korea

6/ Includes those Japanese resident in Korea that were engaged in commerce

7/ South Korea only, for this and subsequent estimates

Table 8: Notes (ctd)

8/ The first estimate taken from the Taiwan Statistical Data Book, p. 15; (which does not explicitly define what is included in the category 'commerce'). A lower estimate of 135,000 was reported in a 1954 Census. But that census used a significantly narrower definition of commerce, and did not include those employed in restaurants, hotels or finance, nor fixed stalls and hawkers with licenses.

9/ Estimate from 1960 population census; a published estimate in the 1961 Korea Statistical Yearbook of wholesale and retail trade (including restaurants and hotels) plus finance was 534,000 people.

10/ The estimate is taken from the 1965 Korea Statistical Yearbook. It is not clear whether the sharp increase over 1960 is real or an artifact of a new source of estimation. However, the existence of two similar estimates for 1960 from independent sources (see note 9), and a parallel discontinuity in the 1960 and 1963 (and '64) estimates of 'sales workers' (not shown in Table 8; estimates of sales workers between 1957 and 1970 track closely estimates of the numbers employed in commerce over the same period) add to the likelihood that the increase signifies real changes in the pattern of economic activity.

status as the "Hermit Kingdom" and, in the absence of a fully monetized economy, depended in part on barter as a vehicle for domestic trade,[32] Taiwan was rapidly being settled by migrants from the Southern coastal province of Fukien, a province located between the major trading ports of Hong Kong and Shanghai. Although the migrants for the most part were poor peasants in search of land to till, the historical record reveals quite substantial trading between Taiwan and the Mainland in the latter part of the nineteenth century.

Initial Conditions and the Transactions Costs of Intermediation

What influences might the different initial conditions outlined above have had on the divergent patterns of expansion of traders and small manufacturers in Korea and Taiwan? As a prelude to answering this question, it is necessary to explore in more detail the character of the transactions costs of intermediation between traders and manufacturers, and lay out what limited, indirect, evidence is available on differences between Korea and Taiwan in the levels of these costs.

The transactions costs of intermediation are taken here to include the costs of search for potential suppliers of footwear, the costs of negotiation with respect to price, quality and the timing of delivery, and the costs of monitoring to ensure the timely delivery of a product of adequate quality. One influence on these transactions costs -- the number of footwear manufacturers -- has already been identified: As the double-lined arrows in Figure 2 summarize, it was via the effect on the number of manufacturers and thus the transactions costs of intermediation that the different degrees of

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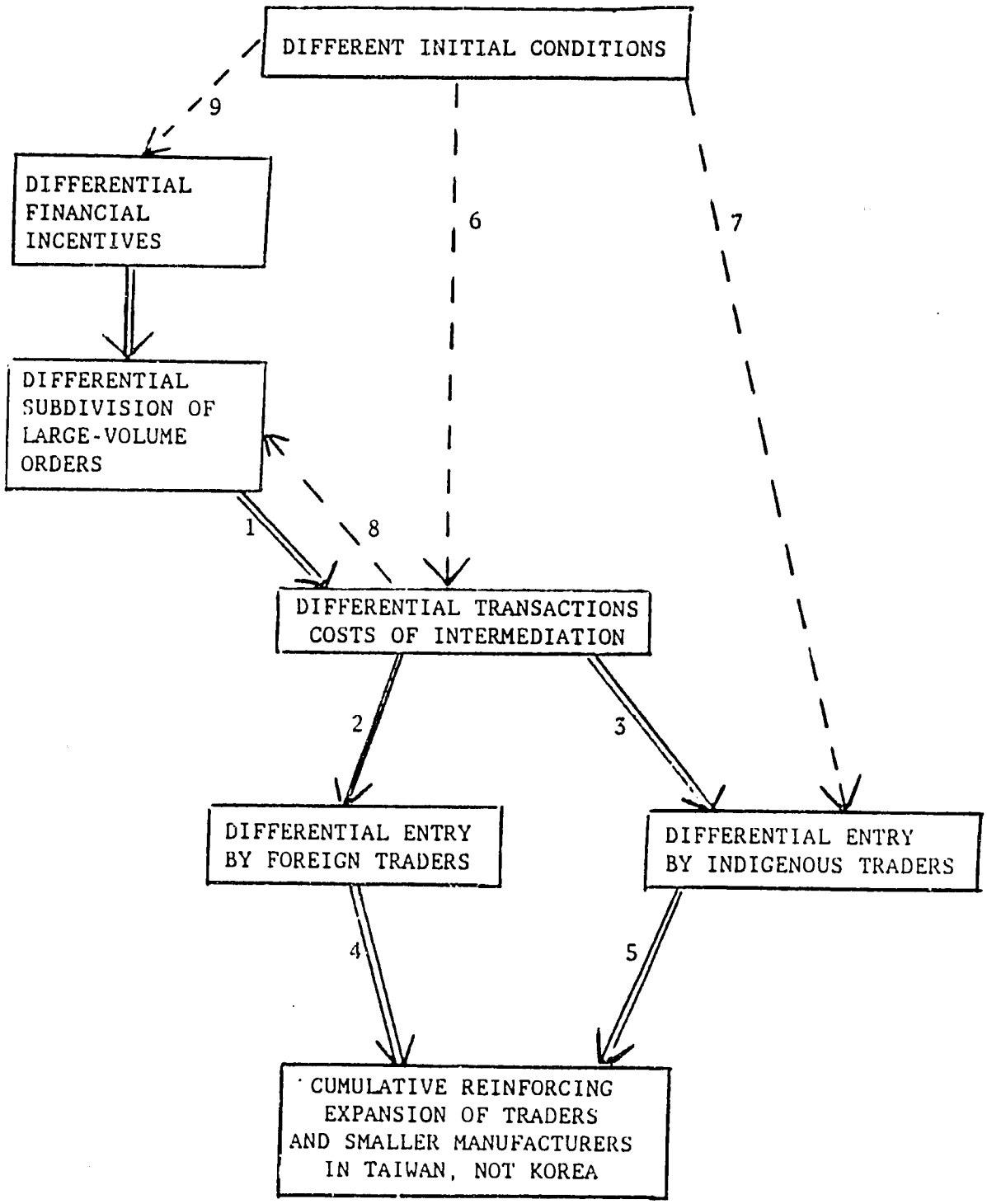
[32] For evidence of the incomplete development of a monetary economy in the 19th century, see Pallais (1975), quoted in Cole and Park (1980) p. 42; and Amsden (1988, forthcoming); also Won in Chun (1982) pp. 57-85.

Figure 2: Intermediation and Industry Structure -- A Summary of Hypotheses



subdivision of large orders were modelled to have their divergent impacts on the pattern of industrial expansion.

Recall that equation (4) in the formal model included the variable X, a vector of influences on transactions costs aside from the influence of the number of manufacturers. Two relevant influences are the supply of efficient indigenous staff to run a local office and the negotiating experience of manufacturers. The availability of an efficient indigenous staff is a crucial determinant of transactions costs insofar as (the case in both Taiwan and Korea) barriers of language and culture inhibit traders headquartered in the importing nation from dealing directly with small and medium manufacturers. Insofar as negotiation is a skill that is learnt-by-doing, and that has positive as well as zero-sum elements, producers that are more experienced negotiators -- and thus have a more accurate perception of the objectives and requirements of buyers -- also are likely to be more efficient negotiators, with a concomitant reduction in transactions costs. As line 6 in Figure 2 summarizes, the higher levels of income per capita and education in Taiwan than in Korea together suggest that the costs of acquiring efficient indigenous staff were lower, and the efficiency of negotiations between buyers and manufacturers greater, at the initial stages of outward oriented industrialization in Taiwan than in Korea.

There is some indirect evidence which at least hints at unusually high transactions costs for foreign traders in Korea in the late 1960s and early 1970s. A feature of Table 2 that has not been noted explicitly thus far in this paper is the decline between 1976 and 1981 in the share of value added in the Korean footwear industry produced by establishments with 500 or more workers -- from 89.9% to 80.5% of the total. As Table 9 reveals, this trend

Table 9 : Industry Concentration in the Korea Footwear Industry, 1979-1985

Percentage Annual Prod. 1/	1979	1980	1981	1982	1983	1984	1985
By largest firm	22.0%	21.9%	20.9%	21.1%	18.7%	18.0%	12.9%
By 4 largest firm	61.4	55.1	52.1	47.9	40.3	36.0	31.9
By 12 largest firm	83.1	82.0	78.3	68.9	60.7	53.0	47.8

Source : Korea Footwear Export Association

Notes: 1/ Production is measured by number of pairs of shoes produced

away from the largest firms accelerated in the early 1980s: in 1979 the four leading firms accounted for 61.4 percent of total shoes produced in Korea; by 1985 this share had fallen to 31.9 percent. Over the same period, the share of production from all firms but the twelve largest rose from 16.9 percent to 52.2 percent. In part, the retreat of large firms is for reasons entirely unrelated to the issues explored in the present paper.[33] But at least to some degree, increased participation on the part of smaller manufacturers was the result of increased procurement from Korea by foreign traders. And this increase in procurement appears to have been at least in part a consequence of declines in the transactions costs of intermediation in that country.

The data in Table 3 show a sharp increase in the early 1980s in the number of traders in footwear in Korea. This pattern is paralleled by an upsurge in the number of foreign buyers and traders of footwear with offices in Korea. According to one estimate,[34] as of 1979 there were only ten buying offices (of both direct buyers and traders headquartered in the USA) in Pusan, the Korean city where the overwhelming majority of export footwear is manufactured; by 1984 the number of registered buyers had risen to 90, and by 1986 to 150.

The suddenness of the increase is in large part a result of the abrogation in 1981 of an Orderly Marketing Arrangement that was imposed in 1977 and

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[33] These include changes in credit markets, in the extent of vertical integration in production and thus in obstacles to entry by small firms, and changes in world patterns of demand for footwear.

[34] provided by a long-time director of one of the largest footwear manufacturers in Korea. Given the ambiguities noted earlier, it is uncertain to what degree these buying offices are accounted for in Table 4, or represent traders additional to those counted in the table.

restricted access of Korean firms to the USA footwear market.[35] But, aside from the relatively small increase in the number of Korean manufacturers, other longer-term declines over the course of the 1970s in the transactions costs of procuring exports from Korea are likely to have paved the way for the upsurge in entry by foreign traders.

The 1970s was a time of enormous expansion of Korean exports -- from a total export value of $1 billion in 1970 to $10 billion by 1977. This general expansion brought in its wake a heightened awareness within Korea generally of what was involved in production for the export market, a surge in the number of Koreans able to communicate in English, and a proliferation of hotels, food and places of residence with which travellers from Western nations would feel comfortable. Thus -- to make explicit the link to the present analysis -- there was a decline in both perceived and actual unfamiliarity of Korea on the part of foreign buyers, foreign buyers and traders increasingly were able to hire Korean staff familiar with the footwear industry (some staff were bid away from manufacturers) and conversant in English, and the efficiency of negotiations between buyers and manufacturers rose as manufacturers (both actual and putative) learned what the requirements were for successful participation in the international marketplace.

Export traders need not, of course, have their headquarters outside of the exporting nation itself: export traders indigenous to the manufacturing nation might also serve to open channels to foreign markets. The different historical

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[35] Between 1977 and 1981 the Korean Footwear Exporters Association (KFEA) allocated quotas to its members, almost entirely on the basis of historical performance. Thus over the almost five-year period of the OMA there were few opportunities for entry and export on the part of smaller manufacturers. There is, however, no evidence that the KFEA hindered entry by new footwear manufacturers prior to the imposition of the OMA.

circumstances of Korea and Taiwan point to the possibility (summarized by line 7 in Figure 2, and the variable H in equation (3) earlier) that for reasons additional to any differences in transactions costs, the supply of indigenous export traders at the initial stages of outward-oriented industrialization was larger in Taiwan than in Korea. Table 10 provides evidence of the substantially greater role of indigenous export traders in the footwear industry in Taiwan than in Korea. 72.4% of the 844 Taiwanese survey respondents -- but none of the Koreans -- reported that domestic traders handled 50 percent or more of their exports. Foreign buying offices accounted for 50 percent or more of the export business of only 17.5% of the Taiwanese firms, but of thirteen of the fourteen Korean respondents. It is certain that the figures for Taiwan grossly overestimate the percentage of 1985 export value that was handled by domestic traders insofar as their role tends to be greatest for the smallest and lowest quality manufacturers.[36] And the Korean data come from a small and somewhat biased sample, and thus are indicative at best. Even so, the data in Table 10 are sufficiently divergent to warrant some confidence that there have been differences in the supply responses of indigenous export traders in Korea and Taiwan.[37]

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[36] Thus, in interviews estimates of the percentage of sales value to the United States (which in 1985 accounted for 71 percent of total value of Taiwan footwear exports) that was handled by Chinese traders ranged from 5 percent (the estimate of a large independent trader headquartered in New York; in 1986 this trader shipped $125 million worth of shoes from Taiwan) to 50 percent (the estimate of one of the larger -- 1986 exports were valued at $30 million-- Chinese trading companies). I incline to an estimate in the 10-20% range for the USA market, with a far higher market share for Chinese traders for exports to markets other than the USA.

[37] It is perhaps worth noting that in 1976 the Korean government began to promote national General Trading Companies along the Japanese model. However, these GTCs have provided few benefits for small manufacturers. For one thing, Korea's GTCs have functioned largely as trading vehicles for the production of the largest conglomerate groups (at least three major footwear manufacturers--

Table10: The Channels of Export of Taiwanese Footwear Manufacturers, 1985[1/]

(% of Total respondents to survey in each country who exported through the various channels)

Channel	Korea	Taiwan
Direct Exports by Factory		
Accounted for some positive fraction of total export value	64.3%	27.4%
Accounted for 20 percent or more of total export value	35.7	11.8
Accounted for 50 percent or more of total export value	14.3	7.0
Domestic Trading Company as Intermediary		
Accounted for some positive fraction of total export value	57.2%	88.4%
Accounted for 20 percent or more	21.4	79.0
Accounted for 50 percent or more	0.0	72.4
Foreign Buying Office or Trading Company as Intermediary		
Accounted for some positive fraction of total export value	100.0%	46.8%
Accounted for 20 percent or more	100.0	25.2
Accounted for 50 percent or more	92.9	17.5

Sources: Results of a survey of 896 firms(844 respondents) conducted for the preparation of Ministry of Commerce and Taiwan Footwear Manufacturers Association, Republic of China, Analysis of Footwear Industry (September, 1986) p.90; and from 11 respondents to a survey mailed to 45 small and medium Korean firms, plus three medium-sized interviewees

Notes: 1/ The small (and perhaps biased) sample of Korean firms implies that the Korean results should be viewed only as indicative. Only members of the Korean Footwear Exporters Association were surveyed. Although KFEA members account for over 90 percent of Korean footwear exports, the smallest Korean exporters are not association members.

A Counterfactual Analysis

The argumentation and evidence above point to an entirely straightforward set of logical linkages -- summarized by lines 6, 7, 2, 3, 4, and 5 in Figure 2 -- between different initial conditions and the divergent patterns of expansion of traders and small manufacturers. The facts, however, are not consistent with the implied hypothesis that the expansion of footwear exports in Taiwan was set in motion by the early entry of export traders on that island. Rather, as was suggested earlier (and was confirmed unanimously by interviewees who had participated in the Taiwanese footwear industry in its initial export efforts), the shift of production from Japan was the common initial impetus for expansion in both Korea and Taiwan. Moreover, as the formal model has demonstrated, the difference in the degree of subdivision of these initial orders (a consequence, as suggested earlier, of different incentives for firm expansion) is sufficient to account for the subsequent divergent patterns of expansion in the two nations. Thus, the proposition that differences in initial conditions were important in accounting for the divergent subsequent patterns of expansion in Korea and Taiwan must necessarily rest on the answer to a counterfactual question: What would have been the trajectory of expansion of the footwear industry in Korea in the absence of incentives for individual firms to maximize the value of their exports?

One possibility that cannot be ruled out is that, absent incentives, the

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Kukje, Samhwa and Hwasung -- have at one time or another been designated as GTCs). For another, given their enormous size, insofar as they do provide marketing support for independent producers, these producers are likely to themselves be relatively large in size. For details of the behavior of the Korean General Trading Companies, see Cho (1987).

course of expansion in Korea would have been identical to that which transpired in Taiwan. It seems more plausible, however, that in the absence of incentives for the expansion of individual firms, the growth of the Korean footwear industry would have been slower than was in fact achieved.

For one thing, in the absence of incentives Korea is likely to have been a higher-cost source of footwear than Taiwan. As was outlined earlier, footwear manufacture appears to be characterized by some, limited, diseconomies of large-scale. Yet, as line 8 in Figure 2 summarizes, in the face of high transactions costs of intermediation large-volume buyers would have had less incentive to subdivide their orders in Korea than in Taiwan.[38] The nett effect is that, absent incentives for large firms, the flow of orders in large volume

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[38] Formally the cost minimization problem of a foreign buyer that has to decide in how many plants to place an order can be written as:

MIN C = C1 + C2
C1 = C1(Q,L) d/dQ < 0; d/dL > 0
C2 = C2(L, TC) d/dL, d2L/dL2 < 0; d/dX > 0

where

C = total costs
C1 = direct costs of production
C2 = factory/buyer transactions costs
Q = volume of order
L = number of lasting lines per factory that receives order.

Applying the first order condition yields:

dC1/dL = -dC2/dL.

Costs are minimized by subdividing an order to the point where the increase in transactions costs as a result of additional subdivision offsets the gains of the more efficient span of control of small and medium producers.

Using the implicit function rule, it is possible to derive the comparative static properties of equation (12) as transactions costs vary:

$$\frac{dL}{dTC} = \frac{-\,d^2C2/dLdTC}{(d^2C1/dL^2 + d^2C2/dC^2)}$$

A simplifying assumption of a linear increase in production costs with increases in the number of lines per factory implies that d^2C1/dL^2 equals zero. And $d^2C2/dLdTC$ is necessarily positive insofar as a change in transactions costs implies by definition a change in the same direction in the marginal costs of dealing with one additional factory. Thus dL/dTC has a negative sign. As transactions costs rise there is a decrease in the number of factories into which an order of given volume will be subdivided.

into Korea is likely to have been smaller than transpired in practice.

For another thing, even if we assume that, notwithstanding the above, the Japanese nonetheless transferred production to Korea (but, counterfactually, subdivided their orders among multiple, smaller manufacturers) the cumulative response is likely to have been smaller than was the case in Taiwan. The key here is the likelihood that, as suggested earlier, the supply responsiveness of traders depends on more than merely the entry of added manufacturers. If, for example, the costs of recruiting reliable, bilingual employees are high an expansion in the number of manufacturers is less likely to induce entry by foreign traders than it would if the costs of recruitment were lower.[39] MOre broadly, Korea's relative backwardness at the outset of outward-oriented industrialization points to the likelihood of a less vigorous endogenous response by traders -- and thus a weaker cumulative expansionary process-- than transpired in Taiwan.

In all, the counterfactual analysis suggests that incentives for the expansion of large firms secured for Korea a more rapid rate of expansion of footwear production and exports than might otherwise have been achieved. Thus, as line 9 of figure 2 implies, the financial incentives of expansion in Korea (and their absence in Taiwan) might themselves be viewed as an endogenous outcome of differences in initial conditions in the two nations.

SUMMARY AND IMPLICATIONS

This paper has developed two distinct sets of hypotheses as to the relationship between export traders and industry structure. The first set

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[39] Formally, the priori assumption is that the second order, cross-partial derivative in equation (4) of the model $d^2TC/dM_0dx < 0$.

highlighted the way in which the interdependence of small manufacturers and independent traders imparts to industrial structure a cumulative, mutually reinforcing character: the analysis explored how the proliferation of small manufacturers can induce an expansion in the number of traders; how the expansion in the number of traders extends access to markets for small-volume, heterogenous orders; and how this rise in demand in turn can induce a further expansion in the number of small manufacturers. In this first set of hypotheses, the supply of export traders is not taken to be an exogenous determinant of the divergent patterns of industrial expansion in Korea and Taiwan; the point rather is that divergent endogenous responses by traders are important in accounting for the divergent patterns of expansion of the two nations.

The second set of hypotheses explored more directly the exogenous influence on industry structure of the transactions costs of intermediation between traders and manufacturers (and thence the supply of export traders). As explored above, from this broader context the provision of incentives for Korean firms to expand can be viewed as an efficient institutional response to a host of market failures at the outset of Korea's outward-oriented industrialization, with associated high transactions costs of export intermediation.

Although the analysis has focused for the most part on differences in the structure of the footwear industry in the two nations, its implications appear somewhat broader. First, it appears relevant to some -- but certainly not all -- sectors outside of the footwear industry. It is most directly relevant for sectors in which production is more-or-less scale neutral, although in scale neutral sectors some supplementary supply-side propositions would be needed to

account for any observed subdivision of orders of large volume. The analysis has no direct explanatory power in sectors characterized by powerful scale economies, insofar as technical conditions of production are wholly determinate of firm size. Insofar as it highlights the demand-side conditions required for entry and expansion in sectors characterized by powerful scale diseconomies, sectors that by definition will be dominated by small firms, the analysis perhaps helps explain why -- other things equal -- some countries are more efficient performers in these sectors than others.

Finally, and most generally, the analysis points to two alternative responses to one of the range of interrelated market failures that potentially confront newly-industrializing nations. One response is to follow the Korean strategy of providing incentives for the expansion of individual firms. Such a strategy, however, carries with it the risk (avoided for the most part in Korea) of fuelling a political-economic process characterized by a high degree of rent-seeking, and associated socially unproductive policies. Thus the alternative response is to endeavor to promote through policy what was in Taiwan the fruit of history and of fortune. Viewed from this perspective, the promotion of traders emerges as one potential government intervention that can reduce the obstacles to participation by small firms in industrial exports.

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